

Mole Unit Study Guide

1. Convert 19 g of Potassium to moles
2. Convert 76 g of Aluminum to moles
3. Convert 32 g of H_2O to moles
4. Convert 87 g of NH_3 to moles
5. Convert 2.2 moles of Calcium to grams
6. Convert 1.2 moles of Tin to grams
7. Convert 4.4 moles of PbO_2 to grams
8. Convert 3.2 moles of KCl to grams

9. Convert 6.7×10^{23} atoms of Iron to moles

10. Convert 8.8×10^{24} molecules of CaO to moles

11. Convert 2.2 moles of Copper to atoms

12. Convert 7.7 moles of CaCl_2 to molecules

13. Convert 19 g of Carbon to molecules

14. Convert 2.2×10^{24} atoms of Manganese to grams

15. You need to create a salt (NaCl) solution that is 0.500L in volume with a concentration of 1.5M. How much salt do you need to add to the solution?

16. You need to create a sugar ($\text{C}_6\text{H}_{12}\text{O}_6$) solution that is 1.500L in volume with a concentration of 0.8M. How much sugar do you need to add to the solution?

17. You have a 1.6M solution that is 100 mL. You need to dilute the solution to 1.2M. How much water do you need to add to dilute the solution?

18. You have a stock solution of HCl that is 12M. Your boss tells you to create a 2.0M solution that is 750 mL in volume. How do you make this solution?

19. You have a 0.8M solution of sugar that is 0.1L in volume. You are instructed to increase the concentration to 1.0M without changing the volume. How much sugar must you add to the solution to reach the proper concentration?

20. You have a 50 g piece of MgO. Determine the mass of Magnesium and Oxygen in this sample.

21. Determine the percent composition by mass in BeCl_2

22. What is the empirical formula of a compound that contains 50.9% Co and 49.1% F?

23. What is the molecular formula of a compound that has an empirical formula of CH_2 and a molecular mass of 56 g/mol?

24. What percent of LiNO_3 is oxygen?

25. What is the empirical formula of a compound that contains 47.7% Cr and 52.3% F?

26. What is the molecular formula of a compound that has an empirical formula of CH_2O and a molecular mass of 180 g/mol?